

AMENDMENTS TO THE CLAIMS

Claims 1 through 30 are currently canceled.

31. (new) A liquid recirculation and transfer system capable of transferring liquid against a small head comprising:

an equipment holding vessel for containing liquid having an enclosed bottom, an open top, at least one side wall connected to said bottom, the sidewall having a discharge port positioned adjacent said bottom for transferring liquid out of the holding vessel and an intake port positioned adjacent the open top;

a high volume, low pressure liquid transfer assembly comprising

a rotor type stirrer having a stirring blade connected to a first end of a shaft and mounted within the equipment holding vessel such that a second end of the shaft is above the top of the vessel;

a submersible housing surrounding said stirring blade and defining a liquid transfer zone, the shaft of the stirrer traversing the housing through a shaft opening in the housing, the stirrer freely rotatable within the housing, the housing positioned within the holding vessel such that the housing is at least partially submersed in liquid when the holding vessel is charged, the housing having a liquid intake for drawing liquid into the housing and a liquid discharge tangential to the housing and aligned with said discharge port for pumping liquid out of the housing; and

a drive mounted adjacent the top of the holding vessel engaged with the second end of the shaft of the stirrer such that said drive is capable of rotating the stirrer.

32. (new) The liquid recirculation and transfer system of Claim 31 further comprising:

a recirculation vessel capable of containing liquid adjoining the equipment holding vessel, the discharge port connected to the recirculation vessel adjacent a bottom of the recirculation vessel and the intake port connected to the recirculation vessel adjacent a top of the recirculation vessel whereby liquid pumped out of the holding vessel through the discharge port enters the recirculation vessel and liquid in the recirculation vessel enters the holding vessel through the intake port by gravitational flow.

33. (new) The liquid recirculation and transfer system of Claim 31 wherein:

the stirrer blade comprises a circular blade carrier perpendicular to the first end of the shaft and fixed thereto, said stirrer blade having a plurality of rotor blades extending radially about the circumference of the blade carrier, the blade carrier perpendicular to the shaft.

34. (new) The liquid recirculation and transfer system of Claim 31 further comprising:

an elevating means for supporting the housing above the bottom of the holding vessel intermediate the bottom of the holding vessel and the housing wherein the liquid intake is positioned on a bottom of the liquid transfer assembly, the intake being axially aligned with the stirrer and having a diameter smaller than the diameter created by the rotation of the stirrer blade.

35. (new) The liquid recirculation and transfer system of Claim 34 wherein:

the elevating means comprises at least one support member affixed to the bottom of the equipment transfer vessel and attached to the housing.

36. (new) The liquid recirculation and transfer system of Claim 31 further comprising:

a sleeve having a top end and a bottom end capable of containing a liquid, the sleeve surrounding the shaft and extending from the shaft opening of the housing, the top end of the sleeve opposite the shaft opening and open, the sleeve of a predetermined length and width sized to maintain a liquid level in the sleeve thus creating a liquid seal for the housing.

37. (new) The liquid recirculation and transfer system of Claim 36 wherein:

the width of the sleeve is sized such that the sleeve liquid level remains above the housing even if the sleeve liquid level drops below the liquid level in the holding vessel.

38. (new) The liquid recirculation and transfer system of Claim 32 further comprising:

a valve intermediate the recirculation vessel and the inlet port for controlling recirculation of the fluid.

39. (new) The liquid recirculation and transfer system of Claim 38 wherein:

the valve is a sluice gate.

40. (new) The liquid recirculation and transfer system of Claim 36 further comprising:

a charging pipe opening in the sleeve positioned above the preset sleeve liquid level; and

a charging pipe having a first end connected to the inlet port and a second end connected to the charging pipe opening for transferring liquid to the sleeve.

41. (new) The liquid recirculation and transfer system of Claim 40 further comprising:

a valve intermediate the recirculation vessel and the inlet port for controlling recirculation of the liquid.

42. (new) The liquid recirculation and transfer system of Claim 41 wherein:

the valve is a sluice gate.

43. (new) The liquid recirculation and transfer system of Claim 32 further comprising:

a sleeve having a top end and a bottom end capable of containing a liquid, the sleeve surrounding the shaft and extending from the shaft opening of the housing , the top end of the sleeve opposite the shaft opening and open, the sleeve of a predetermined length and width sized to maintain a liquid level in the sleeve thus creating a liquid seal for the housing.

44. (new) The liquid recirculation and transfer system of Claim 43 further comprising:

a charging pipe opening in the sleeve positioned above the preset sleeve liquid level; and

a charging pipe having a first end connected to the inlet port and a second end connected to the charging pipe opening for transferring recirculated liquid from the recirculation vessel to the sleeve thereby enabling gravitational return flow from the recirculation vessel to the holding vessel even if the liquid level in the holding vessel is greater than the liquid level in the recirculating vessel.

45. (new) The liquid recirculation and transfer system of Claim 32 further comprising:

a charging port in the equipment holding vessel positioned adjacent the open top of the holding vessel for transferring liquid into the holding vessel; and

a charging vessel capable of containing liquid adjoining the equipment holding vessel, the charging port connected to the charging vessel adjacent a top of the charging vessel whereby liquid from the charging vessel flows through the charging port into the holding vessel by gravitational flow.

46. (new) The liquid recirculation and transfer system of Claim 45 further comprising:

a valve intermediate the charging vessel and the charging port for controlling flow of the liquid into the holding vessel.

47. (new) The liquid recirculation and transfer system of Claim 46 wherein:

the valve is a sluice gate.

48. (new) The liquid recirculation and transfer system of Claim 45 wherein:

the charging port is connected to the recirculation vessel adjacent the top of the recirculation vessel whereby liquid from the recirculation vessel flows through the charging port into the holding vessel by gravitational flow.

49. (new) The liquid recirculation and transfer system of Claim 32 further comprising:

a second recirculation vessel having an open top and a second high volume, low pressure liquid transfer assembly,

an overflow from the first recirculation vessel to the second recirculation vessel,

a discharge overflow from the second recirculation vessel, and

a discharge vessel into which the overflow from the second recirculation vessel discharges once the system is in use.

50. (new) The liquid recirculation and transfer apparatus of Claim 49 further comprising:

a second adjustable holding vessel intake port positioned adjacent the open top of the holding vessel by means of which the discharge vessel is in adjustable return flow communication with the second recirculation vessel and the second holding vessel.

51. (new) The liquid recirculation and transfer apparatus of Claim 49 further comprising

a second adjustable holding vessel intake port positioned adjacent the open top of the first holding vessel by means of which the second recirculation vessel is in

adjustable return flow communication with the first recirculation vessel via the first holding vessel.

52. (new) The liquid recirculation and transfer system of Claim 49 wherein:

the first recirculation vessel is chargeable by means of a charging pipe that discharges into the first recirculation vessel.

53. (new) The liquid recirculation and transfer system of Claim 49 further comprising:

a separator vessel in communication with the discharge vessel via a launder that is fed by an aerator whereby the system is used for the treatment of sewage.